



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

APR 8 1980

Dr. Joseph John
IRT Corporation
7650 Convoy Court
P.O. Box 80817
San Diego, CA 92138

Dear Dr. John:

I am writing in response to your letter to Dr. Hendrie regarding hydrogen production during the accident at Three Mile Island. I regret that this answer to your letter has been delayed. The accident and its consequences have created a substantial increase in the agency's workload, which has prevented me from responding to you as promptly as I would have liked to.

Our estimates show that most of the bubble was produced by the Zr/H₂O reaction. The reason is that radiolysis of water proceeds by a complex chain reaction and can be prevented, through recombination reactions, by even a small overpressure of hydrogen. Also, whatever contribution radiolysis made to the bubble would have come mainly from irradiation of the liquid water by gamma rays from inside the fuel rods and radiation from dissolved fission products. Radiolysis of water would not be expected to be an important contributor to the bubble produced in the TMI-Unit 2 incident.

Your interest and offer of assistance are deeply appreciated.

Sincerely,

A handwritten signature in cursive script that reads "Harold R. Denton".

Harold R. Denton, Director
Office of Nuclear Reactor Regulation